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THE JOURNAL OF PHILOSOPHY

THE SENSORI-MOTOR THEORY OF AWARENESS

I AM grateful to Professor Montague for his kindly estimate of my book, *A Creed for Sceptics*,[1] and for the effort he has made to understand my philosophy. I am grateful to him also for saying frankly what he feels to be its difficulties. It is useful to a philosophical writer to know where it is that others dissent, and what are the points that have not been understood because he has not explained them sufficiently. I am fortunate to be told these things by so clear-headed and honest a critic. His chief objection is to my theory of awareness, to which—probably because I have not explained it with sufficient clearness—I think he does less than justice. I shall offer the further explanations that seem to be needed, and then reply to his objections in a way that, I hope, will remove them.

Nothing is more needed in philosophy at present than a correct doctrine of consciousness. Too much attention has been given to the sense-datum and its identity or non-identity with the object, too little to its relation to the subject or self.

I

We are not far apart in our metaphysics, for we both think that the brain-process is not only physical but also psychical in its nature. But we mean something different by "psychical." He means *conscious*. He includes memory in his conception of consciousness, and explains them both by the fact that, when sensory currents in the brain cause motor currents, part of the energy involved becomes potential. It is the arresting of the currents, their having to overcome an obstacle, that makes them conscious; and it is the invisibility of potential energy, as compared with kinetic energy, that accounts for our inability to see the feelings in another person's brain. Does he think that wherever there is potential energy there is consciousness—in the heart-muscle, in food, in a resting stone; or that there is consciousness whenever an obstacle is overcome—as when a river in flood bursts its banks? If not,

[1] This JOURNAL, Volume XXXV (1938), pp. 572–580.

there must be some special circumstance in the brain that explains the occurrence of consciousness there.

I mean by "psychical" something much more modest. I am anxious to avoid the conclusion that wherever there is energy there is consciousness. I can not believe that the sun and stars, or that atoms, are conscious; and yet there must be something in them out of which consciousness can be evolved. This something I call *sentience,* without being able to form a very clear idea of it. It differs from consciousness in two respects. First, consciousness is awareness, and awareness involves a subject-object relation, but there is no subject-object relation in sentience; it is aware neither of other things nor of itself. It is not cognitive, but purely affective. Secondly, in the sun and stars, in waves and rocks, it is unorganized, and has only physical relations between its parts; but in the brain it is organized and in virtue of its organization takes on functions. Even then, the sentience contains no subject-object relation, it is not aware *intrinsically.* Awareness is a function which sentience acquires when it is organized.

To explain how awareness arises, I start from the simplest examples of it, vision and touch, as these may be supposed to exist in the lower animals—that is, without interpreting thought. Sentience here takes the form of visual and tactile sensations. But there is also a motor factor. The sense-organs have muscles which must be used in order that we should get the sensations. Hence in the brain there are two processes that must be taken into consideration, the sensory and the motor, the reception of impressions and the sending out of orders for contractions of the muscles of sense. Both these processes, on the assumption of sentience, are inwardly psychical, though the emphasis is doubtless on the sensory. There is also a third process, the kinesthetic, which tells us that the muscles have been contracted.

The motor process in question is, in vision, that by which we look in the direction of an object and adjust the eyes, by convergence and accommodation, so as to see it clearly. When the organism responds to a sensation in this way, it *refers the sensation to the object* as its cause. Continuing to look, it uses the sensation to inform itself about the object: and the sensation, though in itself it is not aware, makes the organism aware. It can do so, because it has been brought to bear upon the object by the reaction. *Awareness is thus a function conferred on the sensation by the reaction.*[2] It is unnecessary to suppose that awareness is an intrinsic property of sentience, if it can be accounted for in

[2] By "sensation," in this article, I shall always mean the state of sentience—not the resulting awareness of a quality.

this motor way; much less is it necessary to suppose a miraculous glance that leaps the gulf between the organism and the distant object.

Since the organism has no access to the object except through the sensation, yet its whole concern is with the object, it treats the sensation as *being* the object and as located at the external point on which the eyes are fixed. We may express this either by saying that the sensation is "projected" to form the sense-datum, or that the sensation is transformed into a sensible "meaning" which presents the object. In either case the datum or meaning is distinct from the sensation, and belongs to an entirely different category, the category of the *apparent* as distinguished from the real.

That the reaction as well as the sensation is necessary to awareness will be seen if we consider the difference between visual length and breadth and visual depth. Length and breadth are colored, but depth is colorless. This is because the sensation contributes length and breadth but the reaction adds depth. Depth is something actually felt—felt (partly at least) by means of the kinesthetic sense of convergence and accommodation of the eyes.

Now note that the sensation was transformed into a datum or meaning solely because we looked in the direction of the object and had physically to do with it: and you will see that *in intuiting a datum we necessarily intend a real thing.* Consider, further, that the sensation resembles or corresponds to the object, and you will see that when projected into the place of the object *it may present it correctly*—and must do so to some extent, since otherwise consciousness would never have been evolved.

This is the epistemology which Professor Montague thinks is not so good as my metaphysics. I think it is better, because it keeps close to well-known facts; whereas the notion of sentience is difficult to form—evident though the need for it is if consciousness is to arise naturally and not by a sort of miracle. There must be something in my sleeping body which permits the return of consciousness when I awake; there must be something in matter at large which permits the formation of animal organisms that feel. I do not pretend that I can imagine it; but I can conceive it with sufficient exactness, by thinking that it is like my own nature, with all organization removed. Removal of the organization does not remove the time and space; it does not remove the energy; and it leaves all the feeling. So, if I say that *wherever there is force there is feeling,* I think I am not speaking unintelligibly.

The metaphysics is Spinoza's, with slight changes. Substance,

he says, has two Attributes or natures, *extension* and *thought*, of which the things we experience are Modes. I add *duration* to extension, and change thought to *feeling*, but regard both as Attributes of Substance: that is, it is its nature to be extended and endure, to exert force, and in each of its smallest parts to feel.

II

I will now (at the risk of appearing dogmatic) give a list of the distinctions which are necessary to clearness of thought about cognition, if the sensori-motor theory of it is correct. I call them the *epistemological categories*.

In External Perception there is (1) an *object* known, the real thing; (2) a *datum* given, this thing as it appears; (3) *awareness* of the datum as presenting the thing; (4) a *self* that is aware and that knows.

In Internal Perception there is (1) an *object* known, the self in a certain state; (2) a *datum* given, this state as it appears; (3) *awareness* of the datum as presenting the state; (4) a *later self* that is aware and that knows.

Only the object is known, in both forms of perception. *Only the datum is given*—not awareness of it. How, then, is the datum known? By our finding that a percept was erroneous. How is awareness known? By putting together in thought the self and the datum of either external or internal perception.

Unless these categories are kept distinct, and we know always which of them we are using, thought will be confused. The confusion will be greatest, if we have only one category, "consciousness" or "experience."

III

Now I will reply to Professor Montague's objections to the theory. He calls it behaviorism, and thinks that behaviorism can not explain awareness. Of course it is not behavior alone that explains it, but behavior with sentience.

Lest there should be some misunderstanding, I will state precisely what I mean by behavior. It is not the mere execution of a movement, nor is it merely the sending out of an order for one by the brain; it is both these things—the entire process in the motor part of the sensori-motor arc. This process may in certain cases be only incipient, be only a tendency; it may involve inhibition, the suppression of other movements and tendencies; and it may be started by the associate of an instinctive stimulus in any degree of remoteness. In emotional awareness, it may include se-

cretion of the glands or attitudes of the entire body. Any such response will suffice to make the sentient organism aware.

Professor Montague thinks that behavior is not a factor in producing awareness, and gives his reasons.[3] The specific response does not resemble the object; it can not be directed toward it, except in those cases in which the object is a spatial event contemporaneous with the motion; it can not explain the apprehension of secondary qualities, abstract ideas, other minds, or events of the past or the future; worst of all, it does not provide for the *duration* or *specious present* that characterizes every experience. A formidable list! I will reply to them one by one.

(1) It is not the response, but the sensation, which should resemble the object; and it does—or at least corresponds to and varies with it. Does potential energy in the brain resemble it any better? Even the response varies with the object: the distance seen alters with the degree of convergence and accommodation of the eyes.

(2) Mr. Montague is well advised not to dispute the theory for spatially present objects. The response is not merely "directed toward" these, it is aimed at them. When a man looks intently at an object and adjusts his eyes for it, he indicates as clearly that *that* is what his mind is occupied with as if he had pointed to it with his finger. The kinesthetic sensations that he gets from his eyes and head give him the sense of *dealing with* it, and make vision active, not passive. I agree with my critic that it is not the mere execution of the movement, but the cerebral order for it, that is the essential thing; but, on the other hand, this order would not lead to kinesthetic sensations or to awareness if it were not carried out. The entire motor process, therefore, is necessary. Perhaps we do not really disagree here as much as we seem to.

(3) I postponed memory, because it is a higher function, little indulged in by the lower animals, who yet have acute powers of sight and hearing; and also because it is derivative from sense. We have to experience things before we can remember them. I think we should begin by explaining the lowest functions of all—vision and touch—and not try to construct the upper stories of our house before we have built the basement. When we have got a sound theory of vision and touch, it will be easy to deal with memory and expectation on the same lines. I will suggest how. Past sensations may (in advanced organisms) recur as present images; being weaker, these will excite only a tendency to the original reaction—we shall not look, but only make as if we were about to

[3] Most fully in *Philosophy*, Volume XII (1937), pp. 150–151.

look: this, particularly after experience of the futility of practical reaction, will be treating the object as *no longer* real. Or we may repress reaction but prepare for it in future: this will be treating what we inwardly see as *not yet* real. If memory and expectation can be thus explained, thought will evidently cause no difficulties. Is it likely, if we have to use our optical muscles in order to see, that they are wholly inactive when we imagine? In imagining the sky, will there not be a tendency to look up, and in imagining the ground to look down?

(4) I come to that worst difficulty, *duration* and the *specious present*. But these are simply short-range memory! A specious present rests on a continuum of *real* presents, which have left behind after-effects; these persist in us along with present sensation; and we therefore react partly to what is new, partly to what is still there. When the sensation has not changed but has merely been prolonged, the reaction to it yields a sense of duration.

May I say that I think Professor Montague tends to underestimate the variety and abundance of the motor adjustments of which the human animal is capable, and to suppose that we can not do things which we do every day of our lives? He does not see how Professors Perry and Holt can think that motor adjustment is awareness, because he puts awareness with sensation in the brain; and they do not see how he can do this, because they mean by "sensation" awareness of a quality and put the quality in the object. I wonder if it is not my mission to bring peace into the neo-realistic camp, by showing how the two theses can be combined.

(5) Finally, as to qualities. Has it never occurred to Mr. Montague that the pitch of tones may be due to stimulations repeating themselves too rapidly for us to distinguish them, so that we are aware of the wood but not of the trees; that color, too, depends on vibrations very much more rapid? If this were the explanation, it would be *inability to react* that produced the quality. This is what Bergson calls "contraction" and I call "simplification."

It seems to me that by this reduction of awareness to sentience and behavior a first step is taken towards explaining how consciousness comes out of matter. Of course there is a great deal more to be done before the genesis of consciousness can be fully understood—in particular, we do not yet understand the concentration of awareness that makes the datum so luminously present. The sensori-motor theory explains the presence but not the vividness.

IV

I will take this opportunity of explaining why I can no longer accept Mr. Santayana's view that the datum is an "essence." Professor Montague thinks that I do not understand it, but that is a mistake; there is no matter to which I have given more anxious thought. I advocated this view myself at one time. It is a luminous conception, which seems at first sight to solve the problem of knowledge in the happiest manner; since it permits the essence given and the essence embodied in the object to be identical.

It is this identity that first excited my doubts. Look at a rose, shut your eyes, then open them and look again at the rose: is it the same red that you see? Why, of course. But suppose there are two roses and you see them side by side: is it now the same red? There are two "instances" of red, and they are only exactly alike. Do not tell me that there is only one datum which contains them both, for that is hedging away from the point.

How can I see two reds at once? Because I see them in different places. The datum is not simply red, but red *there,* in a certain direction and at a certain distance. Not only is the datum a red there, but, in addition, it is a red there *at this moment.* At the next moment it may have vanished.

The fact that every datum is *there,* and *now,* can not but raise a doubt whether it is an entity "out of space and time," a pure entity of logic. I am not suggesting that there are no such entities; I fully admit them, but I think they are data of thought, not of sense. My point is that the sense-datum is a datum of sense!

What, exactly, does this statement mean? It means that we need some sign, some sure indication, to show us that an object is real, is really there at this moment: and this sign is the sensuous nature of the datum. Did I really hear that sound, or only imagine it, we ask. *This characteristic makes of the datum a particular, and forbids it to be a universal.* If by an entity of logic you mean an entity that is not itself real but only announces the real —an *apparent*—the sense-datum is one; for logic does not exclude or disdain particulars. On the contrary, all sound logic leads to them. But, if the sense-datum is a particular, it can at the same time be a *psychological* entity. That is, it may be something made to appear on a particular occasion, and generated or produced for that occasion. This is what the sensori-motor theory asserts it to be.

Mr. Montague, then, must not tell me that the sense-datum "subsists" when it is not given, and is just as real then as when it is given. I think it is real (with a certain apparent kind of

reality) only when it is given, and that it vanishes when I shut my eyes. I think it is freshly produced on each occasion, like the food on a good man's table; and I object strongly to being told that earthly cooks have nothing to do with the matter, that it came down from heaven, and that it is always the same food. These things may be true of concepts, but the sense-datum is a percept. If Plato lends his countenance (which I doubt) to the neo-realistic extension of his doctrine, *malo non errare cum Platone.*

My conclusion is, then, that successive sense-data may be exactly alike, but are not the same.

V

I come now to the crucial question regarding the theory, the final test of its worth. Does it make us really know? This question divides into two: (1) Does it make knowledge *direct?* (2) Does it make it *true?*

In reply to the first question, I would remind the reader of the point I made in setting forth the theory, that we can not have a datum given at all unless we intend an object. This means that the datum is perforce attributed to the object as its presentment. I also said, in speaking of the epistemological categories, that though only the datum is given *only the object is known.* That is, the datum comes as knowledge of the object.

Perception is thus, to be quite exact, half direct (as respects intent) and half representative (as respects intuition). This was the best that Nature could do, in constructing the function; and those who criticize her, and think that seeing in this way is not seeing enough, may well explain how *they* would enable an animal to see across the gulf between its body and the object.

Now for the second question. It will be felt that, if datum and object are distinct, and only the datum is ever given, we can never be sure that the datum presents the object correctly; but are dependent on "animal faith" for our assurance that we really know. Lest this phrase should be taken to mean a stupid and perhaps quite unfounded confidence, I substitute for it the words "instinctive trust," meaning by them a natural and presumably justified one.

Presumably! I hear the reader exclaim: but that is animal faith; that is naïveness; that is unphilosophical taking for granted. Stung by these epithets, I cast about to see what I can say in reply —and find three separate proofs of the validity of knowledge, one for external perception, one for internal perception, and one for a form of knowing which I have invented out of the whole cloth.

1. *External Perception.*—The truth of this may be proved by considering that the self is made of the same stuff and in the same space as the object. It follows that, when the object reflects light-rays which act on the self and call forth in it a state resembling the object in the arrangement of its grosser parts, and when this state is projected into the place of the object, the datum does in fact present the object as it really is. It does not show the minuter parts, the protons and electrons; but this is because perception is apprehension of the thing from without, and for purely practical purposes. Though superficial, external perception does correctly show the form and place of the object.

2. *Internal Perception.*—The superficiality of external perception is due partly to the distance between the object and the observer, partly to the difference in their complexity. Both these defects are largely remedied in internal perception of our own states, where a sensation is known by means either of the image it has left behind or of its own continuance. When object and subjective state are exactly or almost exactly alike, it is evident that the datum formed by projecting the latter will give trustworthy knowledge. By this deeper and truer form of perception we first learn that things are inwardly psychical.

3. The whole cloth out of which I have invented this third proof is the sensori-motor theory. I know not whether to call the form of knowing retroactive perception, or introjection; perhaps the best name for it would be self-consciousness or self-knowledge. If, as the theory asserts, the datum is generated by projecting states of the self, these states may be known by retrojecting or introjecting the datum, after having divided it into its sensory and its motor parts; and the nature of the self will be known with even greater directness and certainty than in internal perception.

I content myself with throwing out these hints, and reserve the subject for fuller treatment at another time.

A last word about the datum. If the reader has caught the full sense of the theory, he will see, I think, that the datum thins down into a mere shadow or spot of light thrown by the subjective state upon the object. Its externality is quite illusory. The state of sentience, in generating the datum, undergoes a sea-change through the infusion into it of the felt reaction—quite truly into something rich and strange: for, retaining all its sensuous vividness, it is enriched into color and tone, hardness and softness, by our inability to react to its finer parts; while our projecting it into an external place that is fictitious gives it the strangeness of a vision that is vivid but illusory. The *esse* of such an entity is altogether *percipi*. But just because its place as a datum is illusory, it can

reveal truly and sensibly the place of the object. If I doubt whether things are where I see them, I can put out my hand and touch them; and the doubt is removed.

An adventurous suggestion. It is hard to imagine correlates for all the different qualities of sensation in so homogeneous an organ as the brain. With my theory of awareness, I can conceive that the only correlate of seen color is in the retina, the only correlate of felt movement in the muscles; and that what the brain does is simply to say what movements shall follow what stimulations. If this were so (perhaps there are experiences that disprove it), we should be as immediately in contact with the external as we feel ourselves to be.

What may seem an unpleasant consequence of the illusoriness of the datum—of the visionariness of vision—is the inefficacy both of awareness and of the datum that results. But the loss is itself an illusion: for both the object and the subject remain efficacious. Together they constitute the world in which we live, move, and have our being: why should we wish for more? If my thoughts do not move matter, I who think them do, and move it differently for having had them.

VI

While viewing my metaphysics with sympathy, Mr. Montague sees a serious blemish in its, as he thinks, excessive pluralism. I shall be at a disadvantage in arguing with so accomplished an expositor of current physical theories; and my best course will be to begin by stating briefly how I conceive the physical world.

Everything real is in time and space. Time consists of presents which are instants, space perhaps of points. In each point at each instant there is a varying amount of energy (this permits variety in the world). From instant to instant the energy changes its place. The energy in each point coöperates with the energy in surrounding points to determine the next arrangement of energy. This coöperation occurs throughout space, which thus becomes continuous; and this spatial continuity (being between two instants) is one with the continuity of time. It is action that gives connection to the world. There is no action at a distance, and energy is conserved.

I hope that this way of conceiving the physical is not in contradiction with anything known to physicists, and assume (but I may be wrong) that it would suffice to account for everything that happens. The extreme fineness of the real, the extreme rapidity with which changes occur from instant to instant, weave reality

together into a texture as varied and full of surprises as we actually find the world to be.

Mr. Montague asks whether I admit the existence of "fields." I tried to safeguard myself against such an inquiry by saying that a field is a sum of processes occurring in time—like the issue of drops of water from the sprinkler of a garden hose: the drops are more or less separate and go their way independently, and so do the atoms that compose the drops, and perhaps the punctual energies that compose these. If it is magnetism circulating in "lines of force" about an iron bar, the case is no different. I try in these matters to follow Faraday and Clark Maxwell in their denial of action at a distance and assumption of a physical continuum.

What then is Mr. Montague's case against me? That I do not recognize the "unity" of a field, and note how it "pervades and overrides" the separateness of the parts. Here I feel myself on the scent of a fallacy. Does he deny that each part acts? Does he set a limit to the smallness of the parts that can act? For my part, when I think of the activities of microbes, filter-passing viruses, alpha particles, and photons, I set none. And when I start on this line, I find that I can not stop until I reach the energy in points at instants.

How can a whole "override" its parts, when there would be no whole if it did not consist of them? I can not understand what this "unity" is, which is other than the collection of parts. The issue between us (if there is one) is as to where agency lies: I say it is in each and all of the parts, and not in any whole distinct from them.[4]

He may reply that this does not allow for the specific action of things having *forms.* Then I add, that the action is of all the parts *in their relations:* that is, if one point contains more energy than another, or if they are separated by intervening points, or if there is a protecting membrane, or if many parts cohere, in each case the effect will be different.

This last brings us into the region of the organic. There can be no doubt that certain patterns or forms have exceptional effects, as if Nature had offered a prize for them—the prize of survival. The great example of this is the animal body, with its *nisus* toward self-preservation. This effect is the reward of a certain kind of system. In doubting the action of "unities" I am not denying the importance of system, but only saying that system is a certain arrangement of parts—namely, that arrangement which secures the

[4] I heartily agree with what Lovejoy says about this matter, in the best critique of perceptual theories that has ever been published, his *Revolt against Dualism,* p. 171.

end. The notion that the *form* of a whole can act, independently of the parts which together have that form, seems to me vicious.

Something more like a "unity" emerges when the animal has a nervous system that governs the rest of its body—but this is still a system, in accord with my definition; and something most like a "unity" appears, when the owner of that system sees a word, and understands by it a thing. It is dreadful of me, I know, to hold that this admirable being is still a system of parts, and that he owes even his vision of the word and his intelligence of the thing to the minuteness of his organization; but, really, I can not help myself, I am obliged to follow the argument whithersoever it leads me.

Mr. Montague, I know, dislikes to hear me say that he is made of soul-dust, though I say the same thing of myself. May I ask him to remember that, though I place reality in points at instants, I add that there is no time between two successive instants and no space between two adjoining points, and so make of the real what I think physicists call a "perfect fluid"? When I speak of soul-dust, it is as if I had said that a river is a stream of dust, because it consists of protons and electrons with wide spaces between them. I do not abolish the flow of the stream of thought. And, on my theory, the wide spaces are filled. The soul is not nearly so dusty as a river, since the fluidity of its punctiform energies is perfect. My kindly critic must not think of the ultimate elements of the psychical stream as "specks or crumbs"; I mean it quite seriously when I say that they are no larger than points and no more lasting than instants.

VII

There is no denying that, if this analysis of the real is correct, human action is determinate. The determination, however, is so fine, and the determined but now determinant self so living, that awareness of this should cause no alteration in our behavior and no sense of loss. Least of all should it engender fatalism, which is the mistaken omission of oneself from the factors determining action. My determinism is as harmless as my pluralism.

Do I understand Professor Montague to suggest that determinism makes choice unreal? Surely that is a mistake. The determined agent has just as much need to ask himself what is for his good or for the good of others, and sometimes to hesitate, as the undetermined one. He does not know beforehand what his decision will be; the universe is so fine-grained and so inextricably mixed, its reality being only in the present, that it does not itself

know; and what comes into being in this instant of time will be new and unforeseen—on either theory. The difference between them is that, on the deterministic, it will be determined by some thought of the good; but on the indeterministic, by nothing at all. Is it more moral to be determined by nothing than by good reasons?

I do not deny, as my critic supposes, that a man may "change his character," in the sense in which such change is an actual fact—in the sense that he may choose the better rather than the worse, and reform. But I should say that the good must make some appeal to him, for this to be possible. He must yield to his "better instincts." If we were free not only externally but internally, that is, could see no reasons and had no desires, we *shouldn't* choose, or choice would be wholly arbitrary. In cases that are not indifferent, that is, where there are social or personal reasons for one choice rather than the other, we shall not choose rightly unless the right choice appeals to us. In other words, choice without motives is the toss of the penny; choice with motives is deterministic. James's "effort" requires a force to make it! I don't think there is any possible reply to this psychological analysis.

As to my basing morals on instinct, and thinking it a solid basis for them, the basis must be either in us, or external. Is there anything more deeply rooted in us than certain occasional feelings? If you think that "a time may come when most men will be as tigerish as some men are now," what good will your non-instinctive ethics do either them or you? What will it be but a pious wish on your part, or a fact about the consequences of certain causes? Doubtless there are tigers in the world, particularly at present. If the tigers arm, we must arm too. I base my hopes for humanity on the fact that *the soul is efficacious and bent on its good.*

Self-preservation, in the individual and in communities, is the essence of life: but coöperation is more conducive to it than conflict. "Things are what they are, and the consequences of them will be what they will be: why then should we wish to be deceived"—especially in a world where the safety of civilization depends on intelligent action?

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POSTULATION FOR BEHAVIORAL INQUIRY

HAVING discussed, first the possibility of observing behavior in a locus wider than that of a single organism, and next the recent trend among psychologists toward "situational" construc-

tion,[1] we may now sketch the main features of postulation which are necessary if such observation and construction is to be successfully maintained as knowledge.

Older theories treat knowledge as a process that takes place, or as a status that has place, in or at an animal organism—human, primarily. The newer theories tend to examine it, not as the capacity of an organism, but *directly* as itself a process that arises in the situation: "organism-environment." The organism remains central—"nuclear," if one will—but abdicates as Lord Proprietor.

I shall assert five propositions and call them postulates for "situational" inquiry into behaviors. Each of them, separately taken, is in definite accord with important phases of modern scientific inquiry. No one of them is repugnant to scientific procedures in general, however repugnant some of them may be to non-scientific talk. The postulates are *not* items of belief. They are tools to work with. They concern us *only* as we work with them. Their value depends *solely* on how well they do their work —apart, and together. If they do their work so well that we retain them for any great length of time, they themselves may expect to undergo modification in and through that work.

Prior to their assertion and as introductory to them, let us assume recognition of an attitude which we may speak of as the uniformity of *knowledge* as process and field of inquiry. This attitude is prevalently atmospheric, but not to be taken as a matter for proof or for belief or disbelief in our day. Being an affair of knowledge, it is in contrast with realistic assertions of a uniformity of *nature,* and persons unsympathetic to it may know in advance that they will also be unsympathetic to the postulates that follow, and this to such an extent that they may well spare themselves the labor of a reading. This attitude is: that *all* physiological and behavioral knowledge is legitimately open to scientists for physical inquiry and interpretation; that *all* behavioral knowledge is legitimately open to physiological inquiry and interpretation as this develops in a physical setting; that in such inquiries claims and boasts have no significance, but only work accomplished; that, when all is said and done, physical and physiological knowledge, along with all the rest, is behavioral process, subject itself to behavioral inquiry and interpretation.

The five postulates now to be laid down for working purposes are:

[1] This JOURNAL, "Sights-Seen as Materials of Knowledge," Vol. XXXVI (1939), pp. 169–181; "Situational Treatments of Behavior," Vol. XXXVI (1939), pp. 309–323.

(*a*) Organism and Object. In behavioral inquiry, organic and non-organic participations cover the field, without third participant.

(*b*) Activity and Passivity. What is active in behavior, and what is passive, must be appraised as such through the study of behavior itself, and not under conventional or other external prescription.

(c) Factual Observation. Direct observation shall be permitted for all organism-object situations, with freedom for direct factual report thereon.

(*d*) Space and Time. Behavioral space and time shall be established in whatever ways are germane to behavioral construction. No space and time forms, elsewhere in use or approved, shall usurp control of behavioral observation and report.

(*e*) Existence. All existence asserted shall be stated-existence, not named-existence. Naming shall be subsidiary to statement, and no named-existence shall be permitted to claim authority beyond its range of coherent statement.

These five propositions have been set down in an order advancing from the more specifically behavioral to the more general. They will be discussed briefly in the opposite order.

Stated Existence.—Name a thing—assert with vehemence the existence of what you name—and you at once leave the route of knowing. State—develop and expand your statement—then, in the favorable case, you are on your way forward. A large literature of this import, running from erudite to popular, marks recent years; the varieties of expression are very great, none of them as yet satisfactory. The roots go back of Socrates. The overthrow of logical, as well as of verbal, pretense is everywhere involved. Expansion of statement is made our safeguard against our fallibility of first report. I need do no more here than to call attention to this postulate and give it emphasis.

Behavioral Space-Time.—Newtonian space and time were established in rigid severance from the phenomena investigated and, thus viewed, were called "absolute." More recent physics absorbs its spaces and times into its observed facts; it passes beyond namings to statements; its facts and its space-time become in their way obverse and converse expressions of event. Into the Newtonian space "mind" could not fit itself, but as Protuberant Psyche there stood forth. In the new spaces and times "psyche" ceases to protrude and becomes at last itself event in the world. Physics, out of its own experience of growth, now gives students of behavior justification for choosing their own frames of space and time to fit their facts. It frees them from the old rigidity. An

opening for work appears, for which all determined students of behavior give thanks.

The Right to Observe.—Consider hound-running-hare. Named-hound and named-hare come before our attention as differentiated under the stresses of our practical living. Inspected in rigid Newtonian space, the "names" dominate and the "running" gets into difficulties. The resulting paradoxes are known from antiquity. Nevertheless both hound and hare, thoroughly enough explored, are seen to be made up of runnings, "and the rest appropriately."

I postulate the right, if my purposes require it, to observe hound-running-hare, and all similar events, *directly*, and not as inferential to named-hound and named-hare. The "right" is all I postulate. The utility of procedure under the postulation remains for results to show: and this in the long run.

If I have the right to observe directly hound-running-hare, I have the right to similar direct observation of hound-perceiving-hare, and of man-knowing-hound-running-hare—or of whatever it may be that such phrasings turn out factually to indicate. Recall Singer's words.[2] Start where you are (when you find out as best you can where this is), and take what comes (as best you can). Give the other man likewise his full right to start, to take, and to see. Suppress the waste forced on you by old authority.[3]

Active and Passive.—Newton's third law of motion made action and reaction equal; both termini became parties to the event. Physicists for many generations, even while they *worked* true to the law, could not *see* facts in that form, and could not expound in that form what they saw and did; their "force" still claimed for them its punch. This lag is past for physics, where more and more the differential equation becomes the great central expression —the very description itself—of causation.

"Psychology," in its standard procedures, still concentrates activity, as cause, at a spot. However elaborately it may discuss environments, however strongly it may stress them, it still treats them as alien "things"; its basic construction makes of them in

[2] *See* footnote p. 173 in the first of these three papers.

[3] Argument is not here in place; but (1) we may recall how far physics has traveled from rolling stones, by way of electricity and optics, to the electron and its company—so that now, whether we approve of it theoretically or not, the photo-electric cell opens the door at our approach; (2) we may recall "psychological" report on perceptional build-up, and semantic report on verbal precipitates and defaults; finally (3) we may keep in mind the ceaseless backward and forward swing in the growth of knowledge—old "things" breaking down, new "things" building up—with no one man, and no one generation, having power to settle matters soundly for all time.

the end passivities as over against its own stressed "psychic" powers.

Body-and-mind conflicts bother few inquirers today. Subject-and-object severances are of little prominence under that naming. But concentrations of activity, heavy stresses upon "force" at certain spots, leading to degradation of "force" at other spots, enter everywhere.

Reliance on stated-existence as opposed to named-existence, permitting freely-spaced and freely-timed factual observation, can not, of course, guarantee balanced treatment of activities and passivities in joint system, but it at least opens the way toward that end.

Organism and Object.—"Psychological" construction, in contrast with "situational," introduces and employs—indeed, capitalizes—a "third" component in addition to organism and object. This is manifestly the case with "mentalist psychology," and it is equally the case with the "mentaloid psychology" of the physiologist. In this latter the physiology is (or "is usually," or "may be") soundly scientific, but its affiliated "psychology" merely succeeds in substituting a new "third" component for the old "third"; "souls" and "minds' may be gone, but "brains" or other imitative devices have taken their place.

Such "third" components are named-existences of the kind that do not bear careful statement; they are assigned to a defective and inappropriate time and space; they are incapable of being factually observed; they unduly assert the presence of active powers-at-a-spot. They are out of accord with all five "situational" postulates.

Organism and object together furnish a sufficient, as well as a necessary, base for behavioral inquiry. Thus taken, and literally maintained without evasively intervening "thirds," organism and environment may be coherently investigated in accordance with the proposed postulates. Behaviors are then seen as "situational" rather than as technically "psychological," and run their course as durational events without spectacular concentration at the organism in degrees beyond what phenomenal description will justify. Organism and object become statable as organic and non-organic participations in behavorial events. Their spaces and times are "situational." Direct observation is always practicable. Activity is not arbitrarily concentrated as "force," but becomes that which can be observed and described—wherever it can be observed and described—and nothing else.

The "thirds" are hard to eject. Many have proclaimed success in ejection, but no one, perhaps, has achieved it. Good-will alone

is not enough. To assert strongly the present postulate is not to claim as yet full success in its use. Concealed "thirds" may still be found by others in some of the work we do, and this may long remain a possibility. If they are found we face anew the requirement of either pursuing them till they are ejected, or else of amending our postulation to fit whatever in them shows itself most definitely to be "fact."

Deeds, not Words.—All of the above postulates are meant to be taken literally, but for taking them literally lip-service is not enough. Their program is action. Observation—widened and sharpened observation—is the heart of them. The assertion is that even a small measure of such observation is enormously helpful, and that a full measure can be achieved, if labor is not spared. Liking or disliking the wordings of the postulates in detachment from action has no significance.

In the two preceding papers I have once or twice asserted, and several times hinted, the probability of a future radical theoretical reconstruction of sociological inquiry. While present intentions do not run in this direction, perhaps a pertinent remark or two should be made.

1. If the two promising types of situational inspection—those of Woodbridge and of Pavlov—can be so organized and put to work by others as to eliminate the last remnants of matter-mind conflicts in their procedures, then *all* constructions in which *mental* (or substitute-mental) elements are made to operate *upon* non-mental would quickly disappear. The reader will probably at once remark that in this event practically nothing of the structure of what now calls itself a "science" of society will remain.

2. What will then force itself upon attention will be a certain specialization of behavior-being as apart from that of living-being. A behavior organism will appear which will require portrayal within boundaries not identical with those of an established organism of biological inquiry. The distinction will lie in the particular manner in which the requirements of research lessen or heighten stress upon anatomical skin in delimiting subject-matters. The stress upon skin that is already weakened in many physiological inquiries declines further and more radically for these new behavioral purposes.

3. From this we are quickly led to ask whether we may not perhaps be able to identify something of the nature of cellular structure in the situationally inspected behaviors. Such cellular structures, of course, will have to be themselves situational: i.e., not now capable of adequate description in any mentally, organic-

ally, or environmentally isolated phenomenal forms. The Pavlov signal-reflex (when not given crude, mechanistic distortion) and the Kantor segment-of-behavior (in its more straightforward uses) come at once to mind as two such structures, probably capable of development and maintenance.

4. A different, and additional, cell-form seems, however, indicated for situations which involve the more elaborated activities of speech-using human beings. In earlier work I have made some preliminary development along these lines.[4]

5. Reverting to Woodbridge's envisionment, his inclusion of "thinkings" and "expressings" along with "seeings" and with "the rest appropriately" remains unexamined in our present papers. In this region we find the first great problem for expansion on the changed basis. Pavlov's speculations in his final years about a third cerebral or second cortical system (also called a "second signalling system") are very weak so far as we can make them out from the available reports;[5] but this is manifestly because Pavlov's "cell," if we may call it that, is inadequately framed for this particular extension of inquiry. Kantor's attack in this region is elaborate,[6] but his results—to my eye, at least, and for my personal uses—are far from satisfactory. Adolf Meyer's position, though not running beyond suggestion,[7] has great promise.[8]

6. If "sociology" is to be technically "scientific," it should exhibit basic systematic organization with physics and biology,

[4] My *Process of Government* (1908) was put forth as "an attempt to fashion a tool," and a recent commentator has cited a passage in it (p. 173) which he thinks carries something of the present line of argument. In *Behavior, Knowledge, Fact* (1935), I have discussed "isolationality" in Chapter XIV of Part I, and "observation," "communication," and "behavioral space-time" throughout Part III.

[5] Y. P. Frolov, *Pavlov and his School* (1937), pp. 78–82, p. 228, *et al.* For Pavlov's earlier attitude towards language, *see Conditioned Reflexes* (Anrep, tr.), p. 407.

[6] *An Objective Psychology of Grammar* (1936); also three late essays cited in a footnote of my preceding paper.

[7] "The Psychobiological Point of View" in *The Problem of Mental Disorder* (National Research Council, 1934), pp. 57–60.

[8] A recent discussion from a non-situational point of view is that of Charles W. Morris, "Foundations of the Theory of Signs," *International Encyclopedia of Unified Science*, Vol. I, No. 2, pp. 1–59 (1938). Typical of the "psychological" approach is his inability to attain a coherent statement even for his two or three basic presentations. Thus (p. 3) we are told that the "three components in semiosis" are Sign Vehicle (*S*), Designatum (*D*), and Interpretant (*I*), with "interpreter" as a possible fourth; while only three pages later (p. 6) the "triadic relation of semiosis" involves three correlates, *S*, *D*, and the "interpreter"—the "*I*" now being omitted. On the side of "object" corresponding confusions are continuous, the remarks on the status of *S*, p. 4 and p. 49, offering fair illustration.

which two sciences are the veritable *science* of our era. If it is to use physical and biological materials at all, it should use them in the forms in which the physical and biological sciences present them, and not in some ancient crudity or naïveté which those sciences have long ago overcome and discarded. If "gold" is to enter, it should be in the sense of the gold of physics, and not the gold of a hog that scratches its back on a piece of ore or the gold of some behaviorally degraded speculator on a stock exchange.

7. We find today that most physical, physiological, and behavioral materials enter their various sciences in forms called "conceptual." To deal decently with behaviors in conceptual forms (however the issue may be temporarily evaded in other sciences), we are obligated to gain some understanding as to what the word "concept" stands for *factually* in its current uses. The scholastic and mentalist "definitions" found in dictionaries and elsewhere have no pertinence to present needs. Factual determination is lacking and must be gained. One may today go back and forth across the land indefinitely seeking information: he will garner sneers, scorn, and anger, but never a hint as to "facts."[9]

8. From various points of approach we thus come to the conclusion that the development of the *situationally* conceptual, including the linguistic, out of the *situationally* perceptional, as this latter is developed out of the *situationally* physiological, is our most pressing requirement. Once this task has been reasonably accomplished, then, and I believe then only, will a sound behavioral base be available upon which an acceptable construction of social science can begin to arise.

9. It is improbable that a single technical pattern of speech will be competent to handle all behavioral constructions. Several patterns will be necessary, and these *must* be accompanied, if they are to perform well their work, by definite methods of making transformation from one pattern to another. Physics, physiology, and behavioral sciences are alike in this respect. Even mathematics —in the very simple case—needs a rule to transform the pattern of ⅓ into that of .33333 . . . , and *vice versa*. The Pavlov signal-reflex provides one such speech-form, the Kantor interaction provides another, and a third non-isolational type of expression seems likewise indicated as necessary. If cell-types are set up factually within behavior, then expressive speech patterns must be established to conform to them.

10. Finally we may say: Not some picayune man's ultimatum

[9] Recent abuses of the word "concept" are described in my papers, "The Positive and the Logical," and "Physicists and Fairies," *Philosophy of Science*, Vol. III (1936), p. 472, and Vol. V (1938), p. 132.

as to which is "true": Pavlov's, Woodbridge's, or Kantor's construction, is what we need. Rather it is the power to use many such constructions, and to read each report in the light of the others, so as to get from each most soundly its working values.

John Dewey's book, *Logic, the Theory of Inquiry* (1938), was not yet available when the preceding pages were prepared. Professor Dewey uses the interactional approach for his biological foundations, and proceeds to a naturalistically interactional development of the theory of inquiry (warranted assertion, knowledge) as human behavior, this development including, of course, a thorough rejection of all forms of mentalistic "interactionism." He expressly asserts the first two of the five propositions which the present essay suggests for postulatory status, and under somewhat different formulation employs procedures closely related to the three others.[10] Certain criticisms which at an earlier date I had felt might lie against his attitude [11] are thus not justified as against his fully developed presentation. However he emphasizes our present lack of "a general theory of language," and I take it that this very incompleteness finds illustration in his own work by his retention of certain words from the older vocabulary of philosophy and psychology. The word "conceptual," for example, is employed by him in a great variety of important logical situations, and while he undoubtedly makes it stand for phenomena that are linguistically operational in non-mentalistic ways, it has not yet attained for itself a sharp existential reference. While I am prepared to accept and employ probably every positive determination Professor Dewey has made, I find myself at the same time strengthened by his inquiry in the opinion that much further research will be necessary on the lines above discussed, and that for such work the organic-interactional and social stresses will require supplement by stresses of the full situational type.

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[10] "Behavior is in fact a function of the total state of the organism in relation to environment" (p. 31). "What is designated by such terms as . . . idea, conception . . . must be located and described as behavior in which organism and environment act together, or *inter*-act" (p. 33). "Observation . . . the restrictive-selective determination . . . within a total environing field" (p. 150). "Inquiry effects *existential* transformation" (p. 159). "Observed facts . . . are operational" (p. 112). "I doubt whether there exists anything that may be called *thought* as a strictly psychical existence" (p. 21). Compare for "interaction," the full discussion, pp. 23–36; for the "mental," pp. 57, 106, 159, 287, 525, 530; for the temporal quality of inquiry, p. 118; and for space and time as outcomes of measurement, p. 217.

[11] *Behavior, Knowledge, Fact* (1935), Chap. XI.

BOOK REVIEWS

Philosophy in America. From the Puritans to James. With Representative Selections. PAUL RUSSELL ANDERSON AND MAX HAROLD FISCH. (The Century Philosophy Series.) New York: D. Appleton-Century Company. 1939. xiii + 570 pp. $4.00.

Professors Anderson and Fisch have produced what promises to be a very useful book. It is primarily an anthology of American philosophy to 1900, designed to make available to students source materials which have been relatively inaccessible; but it is also, by means of four introductory essays and many biographical notes, a skilfully condensed account of the main currents of American thought. The authors have tried to meet the needs of two different sorts of courses in American philosophy: those which begin with philosophy and approach America; and those which begin with America and approach philosophy. They have thus exposed themselves to attack from each flank: some critics will object to their inclusion of thinkers who are not technically philosophers; while others will lament their omission of writers whose ideas have been influential without being systematic or self-critical. This reviewer is of the opinion that they have been wise to confine themselves exclusively to neither of the two points of view mentioned above. Technically speaking, the part played by America in the history of philosophy to 1900 was trivial, and the part played by academic philosophy in American life was also trivial; but the story which the authors tell is not trivial.

They begin by sketching the Puritan background against which Jonathan Edwards and Samuel Johnson, to say nothing of Cadwallader Colden and Benjamin Franklin, are to be fully understood. Philosophical idealism, except in the Edwardian theology, they point out, "made no impression on American thought" in the colonial period, largely because of its association with despised Anglicanism. But this was also partly because, in those days, what later idealism defended needed no defense. Coming to the Age of Reason, the authors are perhaps over-generous in assigning as many as twenty-five pages to Vermont's bellicose but unoriginal Ethan Allen. Their excerpts from Jefferson, however, and especially their pairing of John Adams and John Taylor as protagonists of natural aristocracy and democracy respectively, are highly valuable. They have also printed hitherto inaccessible selections from Thomas Cooper, Benjamin Rush, and Samuel Stanhope Smith, the latter as the representative of "Scotch" (the better adjective is "Scottish") realism.

The section entitled "Transcendentalism and Evolution" concentrates on Emerson for the first of the two tendencies, with little attention to his social criticisms. Nineteenth-century utopianism might well have been represented by others of the Concord group. To devote twenty-three pages to John C. Calhoun, with no space allotted to the other side of the debate, is another questionable decision. Agassiz and Fiske are well matched over evolution, although "rare and brilliant" seem strong adjectives to apply to the essentially expository mind of Fiske. Chauncey Wright comes into his own as the precursor of tough-minded empirical naturalism. When the authors approach "The Emergence of Contemporary Issues," they recognize the great difficulty of doing justice to the subsequent variety of twentieth-century thought in the embryonic stage it had reached by 1900. William Torrey Harris they rightly deflate as "our greatest *promotor* of philosophy"; C. S. Peirce is represented only by the classic "How To Make Our Ideas Clear"; and the space given to both Royce and James is rather limited. An excellent general bibliography supplements the many chapter bibliographies.

To stay in the realm of ideas and attach the proper historical labels to America's comparatively few philosophies is a far easier task than to attemp to make the philosophers understood in their relation to the main stream of American life. No anthology has ever suited everyone. But by making the effort to display American philosophy as American thought at its keenest, the authors of this one, lacking neither in courage nor in discernment, seem likely to earn the thanks of a large majority of the students and teachers of the subject.

H. A. L.

Causality in Current Philosophy. Proceedings of the American Catholic Philosophical Association, Volume XIV. CHARLES A. HART, Editor. Washington, D. C.: The Catholic University of America. 1939. 228 pp. $1.50.

This volume contains the papers read at the meeting of the American Catholic Philosophical Association held in Cincinnati on December 28th and 29th, 1938. The general topic of discussion was designated as "Causality in Current Philosophy," on which subject six papers were read. The first of these describes the traditional scholastic notion of efficient causality, as gleaned from the works of St. Thomas. Other papers consider the problem of efficient causality in current physical theory, in contemporary philosophy of religion, in biology, and in psychology. Little is

offered in the way of sustained analysis or inquiry—indeed, one receives the impression that the contributors, however ready to concede that the problem of causality is of basic importance both to philosophy and to the sciences, found it extremely difficult to formulate the problem, to say nothing of offering solutions.

Round Table Discussions were held in the fields of legal and political philosophy, logic and method, metaphysics, ethics, psychology, and history of philosophy; papers read by the leaders of these discussions are published in this volume, pages 103–191. These papers come to grips with definite problems, and exhibit diversities and oppositions which are on occasion interesting and illuminating, as when Father Guthrie vigorously defends the Augustinian theory of non-sensory intuition against the Thomist theory of knowledge.

E. A. M.

An Essay on Critical Appreciation. R. W. CHURCH. Ithaca, N. Y.: Cornell University Press. 1938. 299 pp. $3.50.

The significance of this book is suggested in its title: "A critical appreciation is one in which what is satisfactory is discriminated." The whole thesis of the volume is made evident in its concluding paragraph:

> In order that an appreciation may be critical, it must be informed; for it will be only in virtue of relevant information that the felt characteristics of a situation may be made at all evident. The extent to which the apperception mass of the percipient is relevantly informed will then be the extent to which an appreciation may be critical, and be made articulate for evaluation. Descriptions of the discriminated and valued characteristics of a situation existing in perception and imagination will be a statement of the nature of the beauty which is that aesthetic situation. Those descriptions, taken together, will constitute the context from which the term "beauty" will derive its connotation when it is used with reference to that critical appreciation.

Like Professor Pepper, though with a different vocabulary and a different type of analysis, relying more on the dialectic of value-theory than a psychological instrumentalism, Professor Church has a "context" theory of beauty and a "discrimination" theory of criticism. "A felt situation that is satisfactory in and for itself is a beauty in fact." Professor Church analyzes this "felt situation," discriminates the "immanent" and "inferential values" conditioned by the "apperception mass of the percipient." A description of the "felt aspects" and the conditions of their being felt constitutes a description of the "beauty that is thus discriminated and described." Being turns out to be a satisfaction felt *in* an object and criticism the relevant and informed description of it.

Criticism is "the making and the systematic exposition of evaluations." It requires, as Professor Church points out, a consideration of dominant interests, materials, and methods.

The author points to the two directions in which criticism finds objective rather than merely personal grounds, "aesthetic materials and forms," and "immanent" and "referential" expression. The argument is controlled by a logical interest in an explication of these terms, but these terms are used and developed because they seem, not implausibly, to be instruments of developing "critical" rather than "fatuous" appreciation.

An extended review would have to consider in detail the argument and the illuminating specific things the author has to say about the arts, notably painting, in illustration of this thesis. The important thing in a brief note is to report that Professor Church's book is a step forward in the enterprise of criticism as discrimination. The most important analytical contribution is, to the mind of this reviewer, the account of values as discriminated qualities which constitute "valued characteristics" and "criteria." There is a careful critique of Bradley's attempt to identify inclusive coherence with satisfaction.

I. E.

Die Entstehung des Lebens. Durch Stetige Schöpfung. IGNAZ LICHTIG. Amsterdam: N. V. Noord-Hollandsche Uitgevers Maatschappij. 1938. xx + 371 pp. 6 gulden.

Erik Nordenskiöld has remarked that Darwin brought to his work "a somewhat ingenious orthodox-Christian belief in the creation" which pointed his interest in the direction of the *origin* of species, instead of comparative morphology. Perhaps the same belief led him and many of his followers to assume that spontaneous generation could occur but once in the remote past, after which it was forever impossible, and that there is only a single line of descent for all species. These assumptions have been challenged by Haeckel, O. Hertwig, Loeb, and others, but the present treatise is probably the most systematic and extended effort thus far to prove that spontaneous generation is a continuous process in nature, and that there are many starting points with different lines of descent (polyphylogenesis). The author's arguments against a *single* spontaneous generation, as if it were a miracle which could therefore occur but once, are very effective. He contends that if life was able to emerge from inorganic nature only once in the 1,500 million years in which life was possible on the earth, special conditions, such as a very high temperature, must be supposed to

have existed at one time and never again. As against this supposition the author points out that the cooling of the earth's crust was an extremely slow process, and that temperature has only slightly changed since the earliest geological periods. At times the argument is more formal. Thus the author maintains that the probability of the recurrence of abiogenesis is shown by the fact that while there is good evidence that conditions making it possible once existed, there is no evidence that these conditions, whatever they were, do not exist today. No doubt both of these arguments admit of answers. The force of this polemic is seen, not in isolated contentions, but in the accumulating light of scores of arguments derived from botany, zoology, genetics, paleontology, geology, and other fields. Thus morphological considerations, such as the failure of transitional forms, mixed types and isolated groups, point to a polyphyletic origin. The same is claimed for certain facts of paleontology such as the vast spatio-temporal separation of certain forms which, on the basis of their morphological similarity, would be regarded as phylogenetically related.

Whether the author's speculative thesis will be sustained in the future will rest with experts in various fields. At a time when textbooks are in use which raise doubts about the natural origin of life, a book which sums up the evidence for it in a thorough and convincing fashion is welcome, whatever its special thesis may be.

V. J. McG.

Types of Religious Philosophy. Edwin Arthur Burtt. New York: Harper & Brothers. 1939. ix + 512 pp. $3.00.

As the title suggests, the subject-matter of this volume is not the philosophy or theory of religion, but religious philosophies, or faiths that have been given philosophic breadth and depth. These faiths center about the problems of "man's moral situation," "metaphysical assumptions," and "social ethics." In addition to formulating them with precision, Professor Burtt undertakes an analysis of the methods and limits of religious knowledge. The book is a critical logic for theology. The faiths examined vary from Catholicism, Protestant Fundamentalism, and Modernism, in which "the primary factor is the practical and emotional religious needs of men" (p. 351), to faiths like "the Religion of Science," Agnosticism, and Ethical Idealism, in which the philosophical interests are primary. Humanism is presented as in "intimate historical relation with both emphases" (p. 351) and under this label a variety of philosophies (including those of Russell, Santayana, and Dewey) are associated with the current religious Humanism

that flourishes among philosophers. Several "individual philosophers" (James, Hocking, Alexander, Whitehead, and Bergson) and several "current trends" (supernaturalism, skepticism, naturalistic theism, and nationalism) are treated more briefly than the above-mentioned faiths; the "individuals" are too philosophical to have religious disciples, the "trends" are too religious to have philosophical dignity. Professor Burtt has combined in an admirable way a thoroughgoing logical analysis with sympathetic understanding and objectivity and his book contributes much to the process of the "clarification" of faith, which is its professed object.

H. W. S.

OTHER NEW BOOKS AND JOURNALS

Dewey, John; Bode, Boyd H.; Smith, T. V.: What is Democracy? Its Conflicts, Ends and Means. Norman, Oklahoma: Coöperative Books. Series I, Number 2. 1939. 40 pp. (Series of 10 to 12 books, $2.00 subscription.) (Contains three essays reprinted as follows: "The Future of Liberalism or, The Democratic Way of Change" by John Dewey, reprinted from *New York Times Magazine;* "Ends and Means in Education or, The Conflicts in our Cultural Heritage" by Boyd H. Bode, reprinted from *The Social Frontier;* "The Promise of American Politics or, The Principle of Private and Public Skills" by T. V. Smith, reprinted from his book, *The Promise of American Politics.*)

Rosenmöller, Bernard: Religions Philosophie. Zweite Durchgesehene Auflage. Münster: Verlag Aschendorff. 1939. vii + 168 pp. 3.38 M.

Boodin, John Elof: Man in His World. (Faculty Research Lecture at the University of California at Los Angeles, delivered May 12, 1937.) Berkeley: University of California Press. 1939. 18 pp. 25 cents.

Matchette, Franklin J.: A Preview of the Absolute-Relative Theory. Volume I, Number 2. New York: Published by the author. 1939. 32 pp. 50 cents.

PHILOSOPHICAL REVIEW. Vol. XLVIII, 4. Method and System in Hegel: *Otis Lee.* Reality and Contradiction: *Jonas Cohn.* Concept, Percept, and Reality: *F. F. Wolff.* Discussion—The Interpretation of Whitehead (Reply to John W. Blyth): *Charles Hartshorne.* Implication and Circularity in Descartes: *P. A. Reynolds.*

PHILOSOPHY. Vol. XIV, No. 55. Freedom and Personality: *A. E. Taylor.* Punishment and Retribution: *W. G. Maclagan.*

Recent Trends in Ethical Thought: *Rudolf Metz.* Kant's Criticism of Metaphysics (I): *W. H. Walsh.* Plato's Presentation of Intuitive Mind in His Portrait of Socrates: *K. W. Wild.*

ANALYSIS. Vol. 6, No. 1. Things and Processes: *Margaret MacDonald.* Dialectical Grammar: *Celia Fremlin.* (Vol. 6, No. 2.) The Private Language Problem: *G. G. Looker.* Do We Ever Think in Propositions? *Lucius Garvin.*

ZEITSCHRIFT FÜR DEUTSCHE KULTURPHILOSOPHIE. Band 5, Heft 3. Meister Eckehart: Ein Vortrag: *Josef Quint.* Sitte und Recht: *Karl Larenz.* Hegel in Amerika: *Gustav E. Müller.* René Descartes: *Hermann Glockner.* Zur Kunst des Romans: *Wilhelm von Scholz.*

We have received the following reprints:

"The Problem of Causation in Plato's Philosophy" by Phillip H. DeLacy. Reprinted from *Classical Philology,* Vol. XXXIV (1939), pp. 97–115.

"The Debt of Bishop John Wilkins to the *Apologia pro Galileo* of Tomasso Campanella" by Grant McColley, from *Annals of Science,* Vol. 4 (1939), pp. 150–168.

"Der Kampf um die Autonomie des Lebens" by Joachim Metallmann. Reprinted from *Acta Biotheoretica,* Vol. V (1939), pp. 1–9.

NOTES AND NEWS

We take pleasure in announcing the appointment of Professor Ernest Nagel of Columbia University as an editor of this JOURNAL.

We also wish to announce the following additions to our book-reviewing staff: Professor Otto F. Kraushaar of the Department of Philosophy of Smith College; Professor Norman L. Torrey of the French Department of Columbia University; and Dr. Ernest A. Moody, lecturer in medieval philosophy at Columbia University. These and the other book editors have been appointed for a term of three years, July 1, 1939, to June 30, 1942. The complete list of the present book editors will be found on the inside cover.

From Dr. Arthur Liebert we learn that the new editorial address for *Philosophia,* published in Belgrade, Jugoslavia, is Bedford College, Regents Park, London, N.W. 1, c/o Professor C. A. Mace.

At the same time we can announce that Dr. Liebert has been appointed an honorary research worker in the University of Birmingham.